DOCUMENT RESUME

ED 250 657 CS 007 816

AUTHOR Bowman, Harry L.; And Others
TITLE Fundamental Skills Training for U. S. Navy Recruits.
PUB DATE Oct 84
NOTE 15p.; Paper presented at the Annual Meeting of the College Reading Association (28th, Washington, DC, October 26-28, 1984).
PUB TYPE Reports - Descriptive (141) -- Speeches/Conference Papers (150)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Basic Skills; *Enlisted Personnel; Military Schools; Military Service; Military Training; Program Effectiveness; *Reading Difficulties; Reading Tests; Remedial Instruction; *Remedial Programs; *Remedial Reading; Training Methods
IDENTIFIERS *Navy

ABSTRACT

Basic skills training in the United States Navy has become increasingly important as the quality of the recruit population has declined and the job demands faced by enlisted personnel have expanded. This training is aimed at that group of recruits who cannot read well enough to be successful in service schools. The Navy first initiated programs designed to remedy academic deficiencies in its personnel during World War II, but an official policy on remedial training in basic skills was not issued until 1978. At that time several preexisting programs were given official sanction, including one, Academic Remedial Training (ART), which has been operating at each of the Navy's three recruit training centers since 1967. ART provides instruction in basic reading and study skills, as well as in verbal skills, using a standardized curriculum and testing plan. The population served by ART has consisted of those recruits who score below 6.0 reading grade level (RGL) in reading comprehension on a screening test and recruits with higher RGL scores who experience academic difficulty during recruit training. Beginning with the 1985 fiscal year, any recruit reading below the 8.0 RGL will be enrolled in the program. An analysis of the Navy recruit population for the 1981-83 fiscal years found about 3.6% reading at or below the 6.0 RGL. The principal criterion that has been used to evaluate ART is the percentage of attrition among students assigned to the program. By that standard the ART program has been highly successful in remediating recruit deficiencies, with course completion rates ranging from nearly 92% in 1981 to 97% in 1983. (RBW)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED250657

FUNDAMENTAL SKILLS TRAINING FOR U.S. NAVY RECRUITS

U.S. DEPARTMENT OF EDUCATION
NATIONAL INSTITUTE OF EDUCATION
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

X This document has been reproduced as received from the person or organization originating it.

☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official NIE position or policy.

Harry L. Bowman
Paul L. Jones
Robert A. Kaiser
Memphis State University
Memphis, Tennessee 38152

Norman J. Kerr
Dorothy M. Darcy
Chief of Naval Education and Training
Pensacola, Florida 32508

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

Harry L. Bowman

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

CS 007 816

Paper presented at the 28th Annual Conference of the College Reading Association; Washington, DC; October 26-28, 1984

Introduction

The role of education in the U.S. Navy assumes greater importance as military job ratings become more specialized because of advances in technology. Training programs arising from these advances require that all personnel have a solid foundation in fundamental or basic educational skills in order to complete these training programs successfully. Lacking this training, the individual may not function effectively in the occupational environment and achieve career advancement in the Navy.

Another variable, which is characteristic of society and is reflected in Navy recruits, affects the need for fundamental skills training programs at many Navy Training Commands. This variable is the inability of some recruits to read at an appropriate grade level. Although recent years have seen greater numbers of persons entering the Navy with a high school education, some of these personnel read at grade levels well below those expected of high school graduates. Therefore, the Navy must offer a program to develop proficiency in language skills which are essential for success in the Navy.

Background

During World War II, the Navy initiated programs designed to remediate deficiencies in academic skills among some personnel. However, the Department of the Navy did not establish its official policy on remedial training in basic skills until 1978. The policy statement issued by the Secretary of the Navy on 2 June 1978 stated: "It is the policy of the Department of the Navy to provide, when indicated, on-duty remedial job-relevant basic skills training in order to fill personnel requirements" (SECNAVINST 1510.3, 1978, p. 1). [Job-relevant basic skills are defined as "those capabilities prerequisite to efficient completion of Navy training programs, adequate job performance and career advancement. Notable among these are literacy, study and computational

skills" (p. 1).] In addition to the development of new programs that were a result of the policy statement, fundamental skills training programs that were already operational were given official recognition. One operational program, Academic Remedial Training (ART), provides instruction for recruits in basic reading and study skills as well as verbal skills needed to complete the demanding academic requirements of recruit training.

The ART Program was officially initiated by the Naval Technical Training Command in 1967 at each of the Navy's three Recruit Training Centers as a remedial reading course. The courses at the three sites evolved with dissimilar curricula and testing plans. Eventually, the Chief of Naval Technical Training recognized a need for direct management of the program through a standardized curriculum and testing plan. The prescribed curriculum and testing procedures were implemented in 1978 (CNTECHTRAINST 1540.42). The scope of the curriculum included both reading and study skills (Chief of Naval Technical Training, 1978). A verbal skills curriculum that focuses on listening and speaking skills, primarily for recruits who speak English as a second language, was added to the program at the Orlando and San Diego Recruit Training Centers in 1981 (Chief of Naval Technical Training, 1980).

The commitment of the Navy to provide fundamental skills training for enlisted personnel was reiterated through a policy statement by the Chief of Naval Operations in 1982. Specific skills identified for remediation were reading, mathematics, and communication skills (OPNAVINST 1510.11, 1982, p. 1). The policy states also that "A major goal of enlisted fundamental skills training is to achieve a minimum reading competency of the ninth grade" (p. 1).

Historically, the singular purpose of ART has been to assist recruits in acquiring the reading skills required to complete recruit training successfully. While the ultimate purpose remains the same, the addition of the

verbal skills component to the program expanded the scope of remediation to include listening and speaking skills of recruits who are primarily speakers of English as a second language. The population served by the program has been delimited to enlisted personnel who have not yet begun recruit training or have encountered academic difficulty after beginning recruit training.

Program Design and Procedures

The reading skills component of ART is based on a screening - diagnostic - prescriptive-criterion testing strategy (Bowman, Kaiser, Jones, & Petry, 1984). The reading comprehension subtest of the Gates-MacGinitie Reading Tests, Second Edition (MacGinitie, 1978), is used as a screening test with all recruits who enter the Navy. When standardization of ART began in 1978, the Gates-MacGinitie Reading Comprehension Test--Level D was utilized as the screening instrument. In November, 1982, multi-level testing with Levels D, E, and F was implemented to provide more precise assessment of reading comprehension skills for recruits with higher achievement levels. The assignment of the test level for the initial administration during the first week of recruit training is determined by the sum of the recruit's standard scores on the Word Knowledge and Paragraph Comprehension tests of the Armed Services Vocational Aptitude Battery (United States Military Enlistment Processing Command, 1967-80).

In the screening process, the recruits who score at or below a specified criterion are retested with an alternate form of the Gates-MacGinitie--Level D to confirm the need for reading remediation. The 6.0 reading grade level (RGL) criterion was specified in the 1978 curriculum. (Local Navy Training Commands could deviate above the 6.0 RGL screening criterion to maintain constant enrollment in ART.) In the revised 1984 curriculum to be implemented during fiscal year 1985, the criterion has been increased to require confirmation

testing for recruits who score 8.0 RGL or below. The recruits with RGL scores of 8.0 or below on the second administration will be assigned to ART for remediation. The current policy of the Navy requires that recruits who have reading deficiencies must be assigned to ART for a minimum of one week before they can be reviewed for possible discharge from military service.

The Stanford Diagnostic Reading Test (SDRT), 1976 Edition (Karlsen, Madden, & Gardner, 1976), is used to identify the specific reading deficiencies of recruits assigned to ART. The Brown Level of the SDRT is administered to all recruits assigned to ART before remediation begins. The SDRT can be scored to identify deficiencies at three levels that correspond to levels of ART curricular objectives: general, terminal, or enabling. Diagnoses are made at the lowest level of specificity--the enabling objective level.

The reading and study skills curriculum used in ART is organized in ten modules: 2 on phonetic analysis (consonants and vowels), 2 on structural analysis (word division and blending), 1 on vocabulary, 2 on reading comprehension (literal and inferential), 1 on reading rate, and 2 on study skills (study techniques and notetaking/testtaking). While assignment to the reading skills modules is based on the diagnoses at the enabling objective level with the SDRT, all recruits who are assigned to ART complete the two study skills modules. The recruit who is assigned all modules would normally complete the program within five weeks. Most recruits require considerably less time to remediate their deficiencies.

Prescriptive instructional activities utilizing largely elements from commercial reading materials have been specified in skill prescriptions designed for each enabling objective of the curriculum. In addition, the Instructor Guide for Academic Remedial Training Literacy Skills Curriculum (Bowman, Kaiser, Jones, Malone, & Petry, 1983) provides representative lesson

plans for the curriculum's enabling objectives. Prescriptive activities are assigned to the recruit for remediation of each identified skill deficiency. Group instruction is used in conjunction with the skill prescriptions to provide an individualized, self-paced approach in the implementation of the curriculum.

Criterion tests have been developed for each of the ten modules of the curriculum. The three forms of each test are used as progress tests that must be passed when the recruit completes each assigned module encompassing any enabling objective on which a deficiency is diagnosed. These tests were utilized as exit tests for the modules during 1978-84. The recently revised curriculum specifies that the form of the SDRT not used for the diagnosis must be used as the exit test for the reading skills modules (terminal objectives) of the curriculum.

The verbal skills component of ART is designed for recruits who are identified as having oral language skill deficiencies after assignment to ART. The identification is based on an interview dealing with the recruit's language skill background. The three weeks of instruction involving this component focus on Navy vocabulary, grammatical structures, and language fluency. The methodology used in the curriculum incorporates group instruction, small group activities, and individual assignments. Criterion testing is utilized in assessing performance on each module. Recruits who complete the verbal skills component of ART may be exempt from some initial modules of the reading component.

The implementation of the standardized ART reading curriculum required the use of a Computer-Managed Instruction (CMI) system to perform test scoring functions. The CMI system is utilized to score the Gates-MacGinitie, the SDRT, and the criterion tests employed in the program. A product of using the CMI

system for test scoring is a data base on the reading comprehension skill levels and educationally related characteristics of all Navy recruits. In addition, data on skill deficiencies and criterion test performance of ART students are available from computer records. Monthly reports on the educational, aptitudinal, and reading characteristics of the total recruit accessions are routinely prepared and distributed to ART program mangement personnel.

Recruit Population Profile

Data contained in the monthly CMI reports for fiscal years 1981-83 were compiled and analyzed to provide selected profile information on the Navy's recruit population. Summarized data by fiscal year are presented on three variables: years of education, high school graduation status, and reading grade level. Frequency and percentage distributions and means are presented for the descriptive data. An inferential statistical technique--confidence interval limits--was used to compare proportions of high school graduate and non-high school graduate recruits who scored below the 6.0 RGL.

The educational background and reading grade level means of recruits are reported in Table 1 for fiscal years 1981-83. The means for years of education remained constant at 11.7 years in the first two years but increased slightly to 12.0 years in the third year. While about four-fifths of the recruits in 1981 and 1982 were high school graduates, nine-tenths of the recruits in 1983 were high school graduates. The higher mean for years of education and percentage of high school graduates in 1983 can be attributed primarily to a temporary restriction on Navy enlistment to high school graduates, with few exceptions, during June-September, 1983. The mean for RGL on comprehension remained stable at 9.8 or 9.9 during the three-year period.

Table 2 presents the frequency and percentage distributions of recruits by

TABLE 1

EDUCATIONAL BACKGROUND AND READING GRADE LEVEL
MEANS OF RECRUITS BY FISCAL YEAR

Fiscal Year	Years of Education		High School Graduation Status				Reading Level
			Yes		No		
	N	Mean	f	%	f	%	Mean
1981	85,931	11.7	66,120	78.38	18,233	21.62	9.9
1982	78,539	11.7	60,306	79.07	15,967	20.93	9.8
1983	69,279	12.0	61,190	90.94	6,096	9.06	9.9
Total	233,749	11.8	187,616	82.32	40,296	17.68	9.9

TABLE 2

FREQUENCY AND PERCENTAGE DISTRIBUTIONS OF RECRUITS
FOR FY81-83 BY READING GRADE LEVEL

FY		Reading Grade Level Category					
		6.0 or below	6.1-8.0	8.1-10.0	10.1-12.0	Above 12.0	Total
1981	f	3,058	11,184	13,737	24,897	34,055	89,931
	%	3.56	13.02	15.99	27.81	39.63	100.01
1982	f	2,911	12,819	14,636	22,828	25,345	78,539
	%	3.71	16.32	18.64	29.07	32.27	100.01
1983	f	2,431	6,587	10,251	17,331	32,679	69,279
	%	3.51	9.51	14.80	25.02	47.17	100.01
Total	f	8,400	30,590	38,624	64,056	92,079	233,749
	%	3.59	13.09	16.52	27.40	39.39	99.99

RGL category for fiscal years 1981-83. The percentages of recruits who scored below the 6.0 RGL (test norms do not include the 6.0 RGL) were relatively stable for the three years. (These recruits were retested with a second form of the Gates-MacGinitie for confirmation of reading deficiencies before assignment to ART.) The percentages of recruits with RGL scores between 6.1 and 8.0 ranged from 9.51% in 1983 to 16.32% in 1982. After a decrease from 1981 to 1982 in the percentage of recruits who scored above the 12.0 RGL, the percentage increased anpreciably in 1983 when multi-level testing with the Gates-MacGinitie was implemented.

Table 3 contains comparative data for fiscal years 1981-83 and related analyses of the proportions of recruits who scored below the 6.0 RGL classified by high school graduation status. Within the composite groups, 3.73% of the high school graduates and 2.47% of the non-high school graduates scored below the 6.0 RGL on reading comprehension. The percentages with RGL scores below 6.0 were relatively stable for both groups in the three fiscal years.

The proportions of high school graduates and non-high school graduates who scored below the 6.0 RGL were compared by computing confidence limits for the differences in proportions using the .95 level of confidence. The results indicated that the difference for the composite groups was significant since the confidence limits did not include 0 within the range. The proportions also differed significantly for each of the three fiscal years. In all comparisons, the proportions of high school graudates who scored below 6.0 RGL were greater than the corresponding proportions for non-high school graduates.

Program Evaluation

At the present time, the principal criterion that is used to evaluate ART is the percentage of attrition among students assigned to the program as reported in Table 4. The percentage of attrition is derived by multiplying 100

TABLE 3

COMPARISON OF PROPORTIONS OF RECRUITS SCORING BELOW SIXTH READING GRADE LEVEL FOR FY81-83 BY HIGH SCHOOL GRADUATION STATUS

FY	High School Graduate				Confidence Limits .025 to .975
	Yes		No		
	N	p	N	p	
1981	66,120	.0380	18,233	.0250	.0101 to .0156
1982	60,306	.0388	15,967	.0243	.0117 to .0173
1983	61,190	.0351	6,096	.0249	.0061 to .0143
Total	187,616	.0373	40,296	.0247	.0111 to .0141

TABLE 4

SUMMARY OF EVALUATIVE DATA ON ART FOR FY81-83

Variable	Fiscal Year		
	1981	1982	1983
Number assigned to ART	3,109	3,191	3,186
Percentage of accessions	3.24	3.76	4.08
Number of ART graduates	2,687	2,727	2,841
Number of ART attrites	245	132	104
Attrition percentage*	8.11	4.36	3.39

*Based on student flow

$$\text{Student Flow} = \frac{\text{Input} + \text{Graduates} + \text{Attrites}}{2}$$

$$\text{Attrition Percentage} = \frac{\text{Attrites}}{\text{Student Flow}} \times 100$$

times the ratio of attrites to student flow. Student flow is defined as the sum of input (students assigned to ART), graduates, and attrites divided by 2. The data on these variables were obtained for fiscal years 1981-83.

As stated earlier, Navy recruit assignment to ART has been based on (1) scoring below the 6.0 RGL on two administrations of the Gates-MacGinitie at the beginning of recruit training or (2) academic test failure after initiating recruit training. During fiscal years 1981-83, the number of recruits assigned to ART as shown in Table 4 varied by less than 100 recruits from a low of 3,109 in 1981 to a high of 3,191 in 1982. The percentage of recruits entering the Navy who were assigned to ART increased each year--from 3.24% in 1981 to 4.08 % in 1983. The increases in percentages probably reflect the use of a higher screening criterion to maintain relatively stable enrollment in ART throughout the year.

The data on ART graduates showed increases in the number of recruits who graduated each year. Although the number of recruits assigned to ART was almost the same in 1982 and 1983, the number of graduates increased by 114 recruits. The number of recruits who attrited from ART decreased considerably during the three-year period. These numbers represent the actual number of graduates and attrites during the respective fiscal years. Some of the recruits who graduated or attrited in each fiscal year were assigned to ART in the previous fiscal year. The student flow statistic is used, therefore, to provide a measure of the number of recruits served during the year.

Based on the student flow statistic, the percentages of recruits who attrited from ART decreased dramatically during fiscal years 1981-83. While the attrition rate was 8.11% in 1981, it decreased to 4.36% in 1982 and 3.39% in 1983. [Historically, the attritions have been about equal in number for academic reasons and non-academic (e.g. medical and legal) reasons.] The

success rate of the program, defined as 100% minus the attrition percentage, has shown appreciable improvement from approximately 92% in 1981 to 96% in 1982 and 97% in 1983.

Summary and Conclusions

Basic skills training in the Navy has become increasingly important as the quality of the recruit population has declined and the job demands faced by enlisted personnel have expanded. In the context of an All Volunteer Force and reductions in the number of available personnel who qualify for military service, the Navy must maintain such programs in order to meet its mission requirements.

While ART has been in operation at the Navy's Recruit Training Centers for several years, a standardized curriculum and testing plan have been utilized only since 1978. The population served by ART has consisted of those recruits who scored below 6.0 RGL in reading comprehension on the screening test and recruits with higher RGL scores who had academic difficulty during recruit training. The screening criterion has been increased to the 8.0 RGL in the new curriculum that will be implemented during fiscal year 1985.

During fiscal years 1981-83, increases are observed in the mean for years of education and percentage of high school graduates among Navy recruits. The means for RGL and percentages of recruits scoring below the 6.0 RGL are reasonably stable for this time period. A slightly increasing percentage of the recruits were assigned to ART as a result of the screening test scores or academic failure during the three fiscal years.

Higher percentages of high school graduates than non-high school graduates score below the 6.0 RGL on reading comprehension. Among fiscal years 1981-83, the differences ranged from 1.02% in 1983 to 1.45% in 1982. The comparisons of proportions of high school graduates and non-high school graduates scoring

below the 6.0 RGL reveal significantly higher proportions for high school graduates.

ART is highly successful in remediating the reading deficiencies of recruits assigned to the program. Although the success rate was impressive in 1981--almost 92%, it increased to almost 97% in 1983. Refinements made in the program since standardization occurred in 1978 have increased its effectiveness in addressing the academic needs of Navy recruits. Continued attention will be given to maintain an effective and relevant program because of the importance of ART in Navy training.

References

Bowman, H. L., Kaiser, R. A., Jones, P. L., Malone, M. G., & Petry, J. R. (1983). Instructor guide for Academic Remedial Training literacy skills curriculum. Millington, TN: Chief of Naval Technical Training.

Bowman, H. L., Kaiser, R. A., Jones, P. L., & Petry, J. R. (1984). Literacy skills curriculum for Academic Remedial Training (1984). Millington, TN: Chief of Naval Technical Training.

Chief of Naval Technical Training. (1978). Literacy skillls curriculum for Academic Remedial Training. Millington, TN: Chief of Naval Technical Training.

Chief of Naval Technical Training. (1980). Verbal skills curriculum. Millington, TN: Chief of Naval Technical Training.

CNTECHTRAINST 1540.42. (1978). Academic remedial training (ART). Millington, TN: Chief of Naval Technical Training.

Karlsen, B., Madden, R., & Gardner, E. (1976). Stanford diagnostic reading test. New York: Harcourt Brace Jovanovich.

MacGinitie, W. (1978). Gates-MacGinitie reading tests (2nd ed). Boston: Houghton-Mifflin Company.

OPNAVINST 1510.11. (1982). Enlisted fundamental skills training. Washington: Department of the Navy.

SECNAVINST 1510.3. (1978). Remedial training in basic skills. Washington: Department of the Navy.

United States Military Enlistment Procesing Command. (1967-80). Armed services vocational aptitude battery (Series 5-10). Ft. Sheridan, IL: United States Military Enlistment Processing Command.